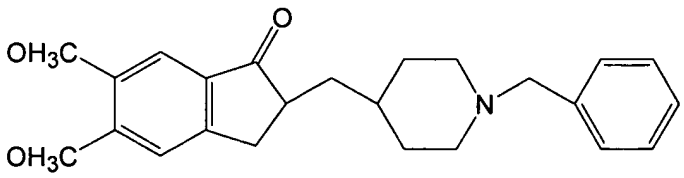
AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

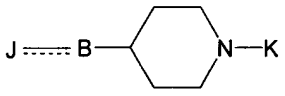
Listing of Claims:

Claim1 (original): A protective agent for neurons of the central nervous system, comprising any one of the compounds shown in the following (i) to (vii):

(i) 1-benzyl-4-[(5,6-dimethoxy-1-indanone)-2-yl]methylpiperidine represented by the following chemical formula or a pharmacologically acceptable salt thereof:

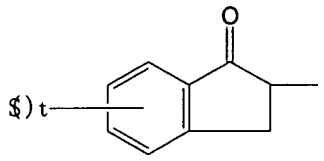


(ii) a cyclic amine derivative represented by the following general formula (I) or a pharmacologically acceptable salt thereof:

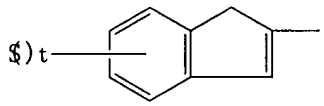


(I)

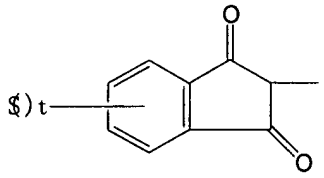
where J is a monovalent or divalent group selected from the groups represented by the following formulas:



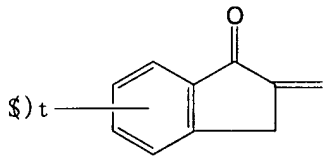
Indanonyl



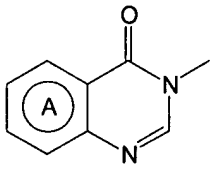
Indenyl



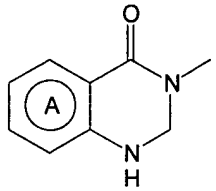
Indandionyl



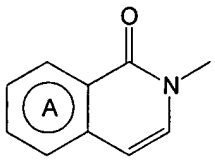
Indanolydenyl



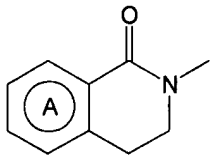
(a)



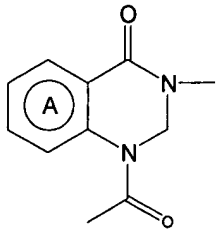
(b)



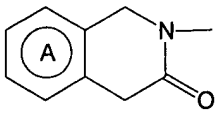
(c)



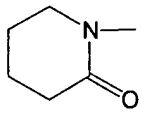
(d)



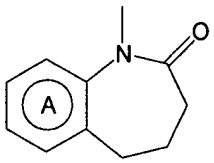
(e)



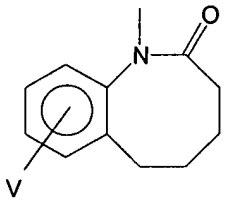
(g)



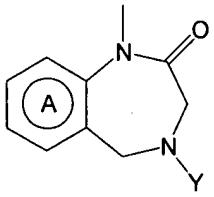
(h)



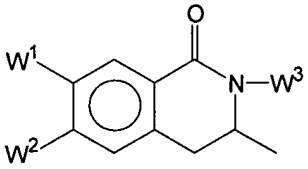
(j)



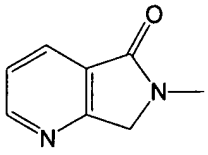
(k)



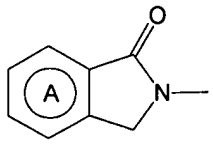
(l)



(n)



(p)



(q)

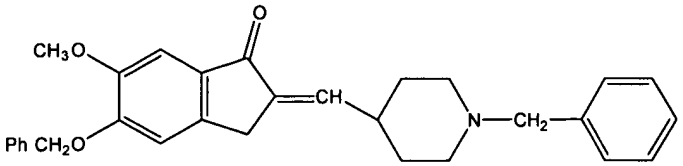
where S is a lower alkyl group with 1 to 6 carbon atoms, a lower alkoxy group with 1 to 6 carbon groups, a halogen atom or a hydroxyl group; t is 0 or an integer from 1 to 4; $(S)_t$ may form a methylenedioxy or ethylenedioxy group between adjacent carbon atoms on the phenyl ring linked; Y in formula (l) is a hydrogen atom or a lower alkyl group with 1 to 6 carbon atoms; V in formula (k) is a hydrogen atom or a lower alkoxy group with 1 to 6 carbon atoms; W^1 and W^2 in formula (n) independently represent, similarly or differently, a hydrogen atom, a lower alkyl group with 1 to 6 carbon atoms, or a lower alkoxy group with 1 to 6 carbon atoms; W^3 in formula (n) is a hydrogen atom or a lower alkyl group with 1 to 6 carbon atoms; phenyl ring A in formulas (a) to (e), (g), (j), (l) and (q) may be substituted with an alkyl group with 1 to 6 carbon atoms or a alkoxy group with 1 to 6 carbon atoms;

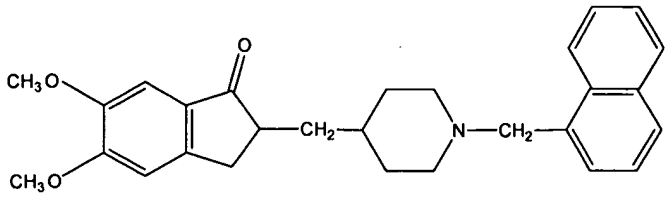
B is a group represented by a formula $-(CHR^2)_n-$ (where n is 0 or an integer from 1 to 10; R^2 is each independently a hydrogen atom or a methyl group), a group represented by a formula $=(CH-CH=CH)_b-$ (where b is an integer from 1 to 3), a group represented by a formula $=CH-(CH_2)_c-$ (where c is 0 or an integer from 1 to 9), or a group represented by a formula $=(CH-CH)_d=$ (where d is 0 or an integer from 1 to 5);

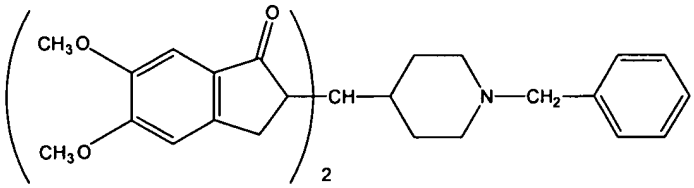
K is a phenylalkyl group that may have, as a substituent, an alkyl group with 1 to 6 carbon atoms which may be halogenated, an alkoxy group with 1 to 6 carbon atoms, a nitro group, a halogen atom, a carboxyl group, a benzyloxy group, an alkoxycarbonyl group with 1 to 6 carbon atoms, an amino group, a monoalkylamino group with 1 to 6 carbon atoms, a dialkylamino group with 1 to 6 carbon atoms, a carbamoyl group, an acylamino group with 1 to 6 carbon atoms, a cyclohexyloxycarbonyl group, an alkylaminocarbonyl group with 1 to 6 carbon atoms, an alkylcarbonyloxy group with 1 to 6 carbon atoms, a hydroxyl group, a formyl group or an alkoxy (with 1 to 6 carbon atoms)-alkyl (with 1 to 6 carbon atoms) group; and

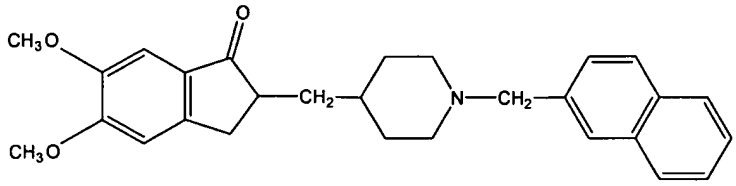
$\overline{\text{- - - -}}$ represents a single bond or a double bond;

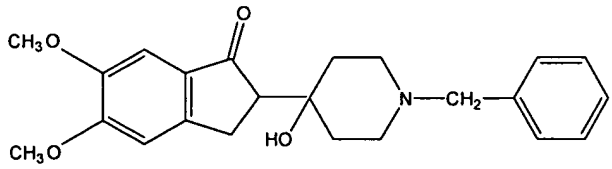
(iii) a cyclic amine derivative selected from the compounds represented by the following formulas or a pharmacologically acceptable salt thereof:

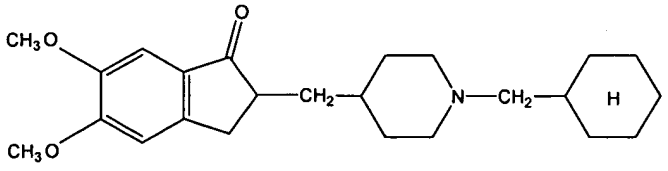


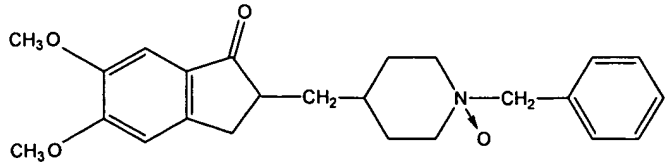




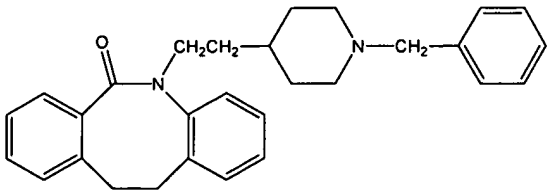


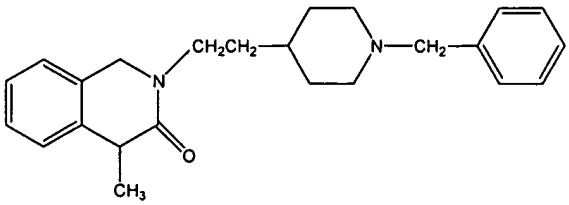


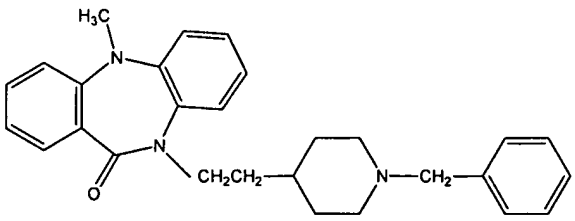


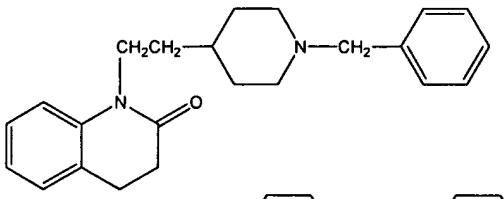


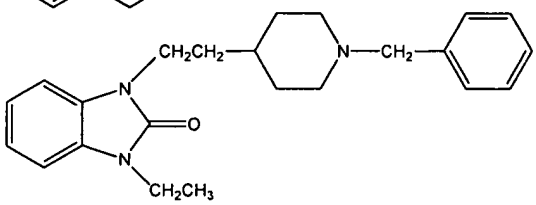
(iv) a cyclic amine derivative selected from the compounds represented by the following formulas or a pharmacologically acceptable salt thereof:

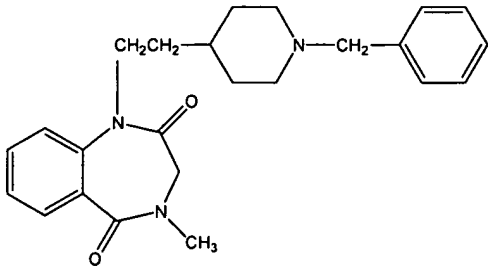


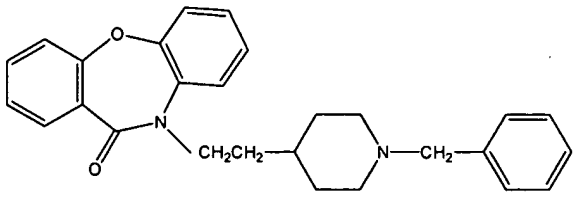




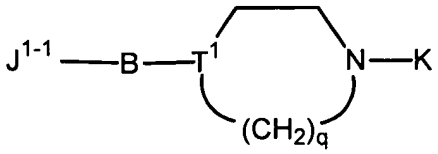






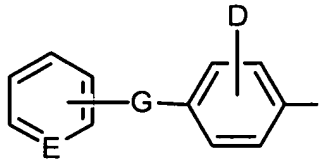


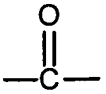
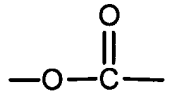
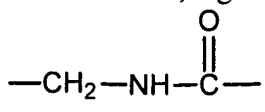
(v) a cyclic amine derivative represented by the following general formula (I-1) or a pharmacologically acceptable salt thereof:

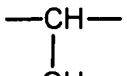
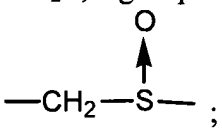


(I-1)

where J^{I-1} is a lower alkyl group with 1 to 6 carbon atoms (hereinafter, just referred to as "lower alkyl group"); a cyclohexyl group; a phenyl, pyridyl or pyrazyl group which may have, as a substituent, a lower alkyl group, a lower alkoxy group with 1 to 6 carbon atoms (hereinafter, just referred to as "lower alkoxy group"), a nitro group, a halogen, a carboxyl group, a lower alkoxycarbonyl group, an amino group, a mono-lower alkylamino group, a di-lower alkylamino group, a carbamoyl group, an acylamino group derived from aliphatic saturated monocarboxylic acid with 1 to 6 carbon atoms, a cyclohexyloxycarbonyl group, a lower alkylaminocarbonyl group, a lower alkylcarbonyloxy group, a halogenated lower alkyl group, a hydroxyl group, a formyl group or a lower-alkoxy-lower-alkyl group; a group represented by a formula



where G is a group represented by a formula  , a group represented by a formula  , a group represented by a formula -O- , a group represented by a formula  , a group represented by a formula $-CH_2-O-$, a group represented by a

formula $-CH_2-SO_2-$, a group represented by a formula  , or a group represented by a formula  ;

E is a carbon atom or a nitrogen atom;

a quinolyl group; a quinoxalyl group; a furyl group or a group represented by a formula R^1-CH=CH- (where R^1 is a hydrogen atom or a lower alkoxycarbonyl group);

B is a group represented by a formula $-(CH_2)_n-$, a group represented by a formula $-NR^2-(CH_2)_n-$ (where R^2 is a hydrogen atom, a lower alkyl group, a phenyl group or a lower alkylsulfonyl group), a group represented by a formula $-CONR^3-(CH_2)_n-$ (where R^3 is a hydrogen atom, a lower alkyl group, a phenyl, benzyl or pyridyl group which may have, as a substituent, a lower alkyl group, a lower alkoxy group, a halogen or a hydroxyl group), a group represented by a formula $-NH-CO-(CH_2)_n-$, a group represented by a formula $-CH_2-CO-NH-(CH_2)_n-$, a group represented by a formula $-CO-CH_2-CH(OH)-CH_2-$, a group represented by a formula $-CO-(CH_2)_n-$, a group represented by a formula $-C(OH)-(CH_2)_n-$ or a group represented by a formula $-CO-CH=CH-CH_2-$; and n in the above formulas is 0 or an integer from 1 to 10;

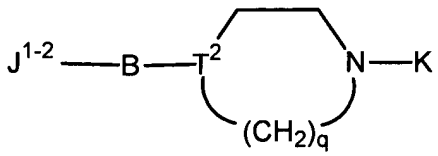
T^1 is a carbon atom;

K is a phenylalkyl group (where the alkyl has 1 to 2 carbon atoms) in which the phenyl may have, as a substituent, a lower alkyl group, a lower alkoxy group, a nitro group, a halogen, a carboxyl group, a lower alkoxycarbonyl group, an amino group, a mono-lower alkylamino group, a di-lower alkylamino group, a carbamoyl group, an acylamino group derived from aliphatic saturated monocarboxylic acid with 1 to 6 carbon atoms, a cyclohexyloxycarbonyl group, a lower alkylaminocarbonyl group, a lower alkylcarbonyloxy group, a halogenated lower alkyl group, a hydroxyl group, a formyl group or a lower-alkoxy-lower-alkyl group; a cinnamyl group; a lower alkyl group; a pyridyl methyl group; a cycloalkyl (with 3 to 6

carbon atoms)-alkyl group; an adamantanemethyl group; a furfuryl group; a cycloalkyl group with 3 to 6 carbon atoms; or an acyl group; and

q is 1 or 2;

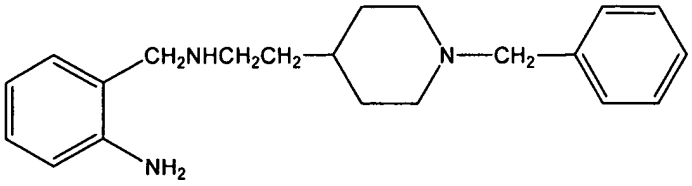
(vi) a cyclic amine derivative represented by the following general formula (I-2) or a pharmacologically acceptable salt thereof:

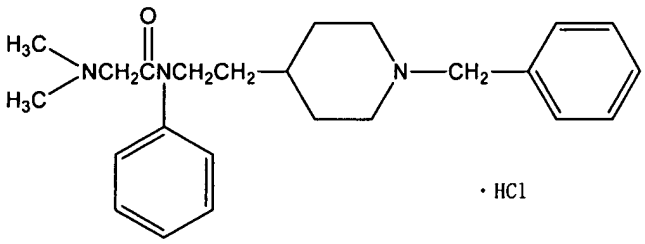


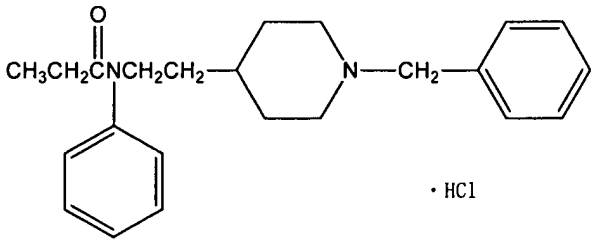
(I-2)

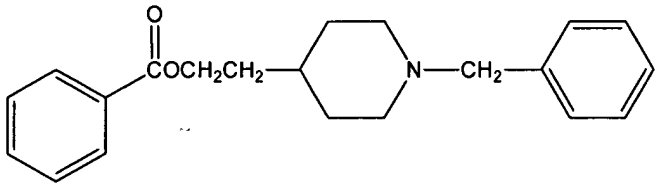
where J^{1-2} is an indanonyl group which may have, as a substituent, a lower alkyl group with 1 to 6 carbon atoms or a lower alkoxy group with 1 to 6 carbon atoms; T^2 is a nitrogen atom; B, K and q are the same as defined above;

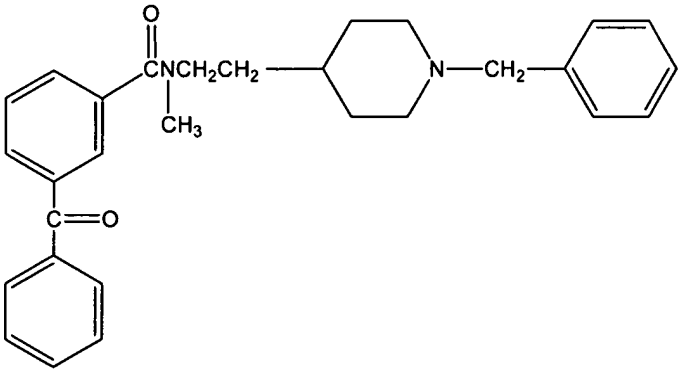
(vii) a cyclic amine derivative selected from the compounds represented by the following formulas or a pharmacologically acceptable salt thereof:

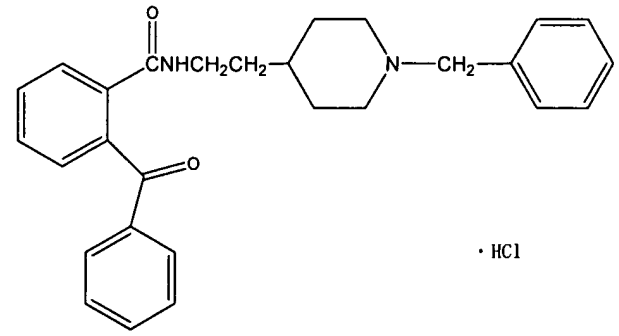

CH2NHCH2CH2
N
CH2
NH2

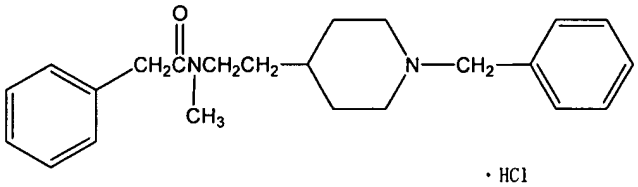

O
H3C
NCH2CNCH2CH2
H3C
N
CH2
· HCl

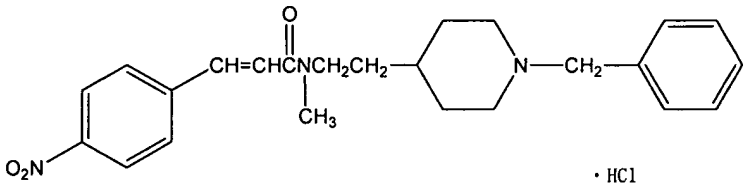

O
CH3CH2CNCH2CH2
N
CH2
· HCl

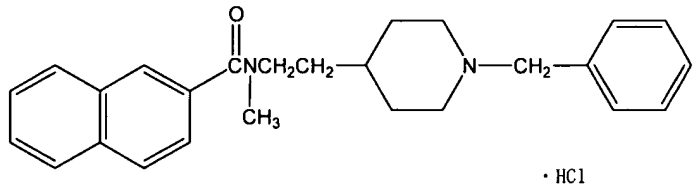

O
COCH2CH2
N
CH2

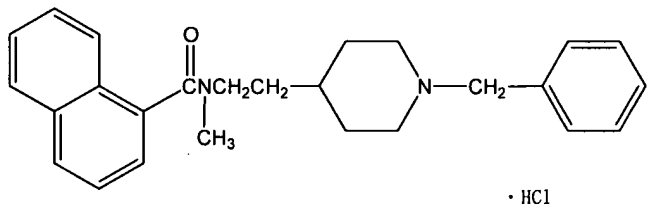

O
CNCH2CH2
CH3
N
CH2
C=O

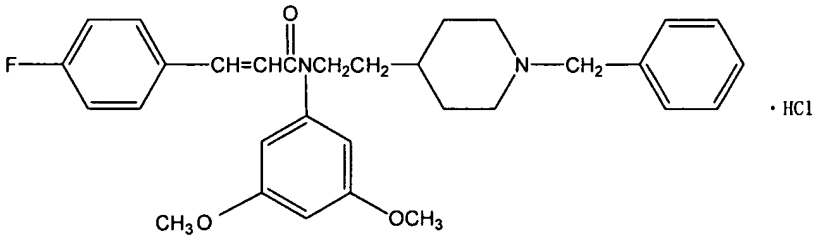








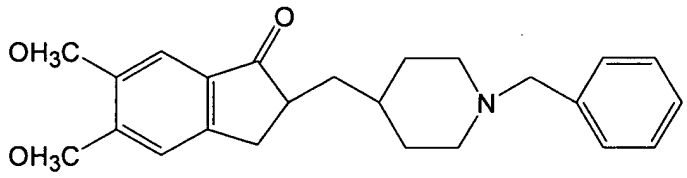




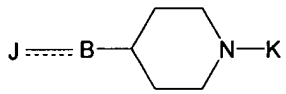
Claim 2 (original): The protective agent according to claim 1, wherein the salt is a hydrochloride salt.

Claim 3 (original): A prophylactic and/or therapeutic agent for disorders in neurons of the central nervous system, comprising any one of the compounds shown in the following (i) to (vii):

(i) 1-benzyl-4-[(5,6-dimethoxy-1-indanone)-2-yl]methylpiperidine represented by the following chemical formula or a pharmacologically acceptable salt thereof:

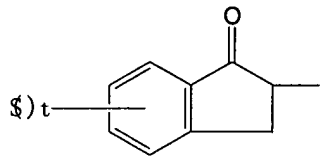


(ii) a cyclic amine derivative represented by the following general formula (I) or a pharmacologically acceptable salt thereof:

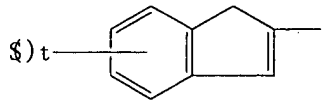


(I)

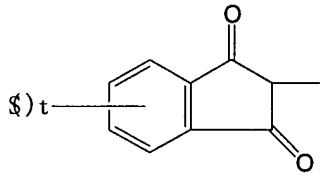
where J is a monovalent or divalent group selected from the groups represented by the following formulas:



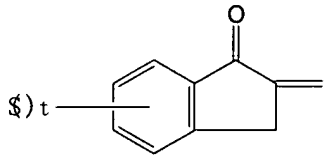
Indanonyl



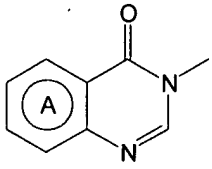
Indenyl



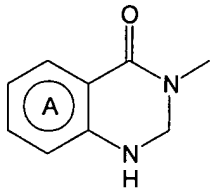
Indandionyl



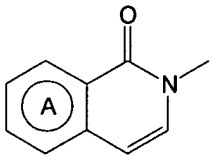
Indanolydenyl



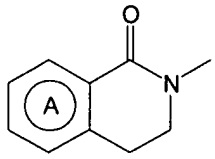
(a)



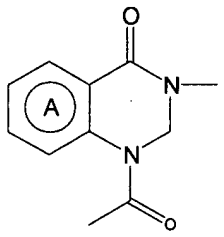
(b)



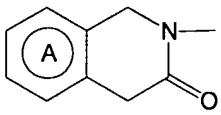
(c)



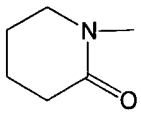
(d)



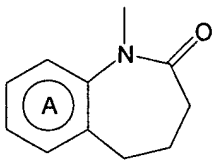
(e)



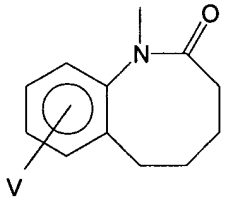
(g)



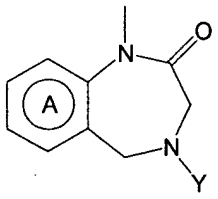
(h)



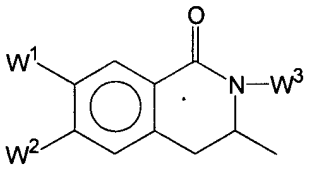
(j)



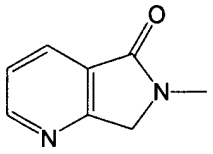
(k)



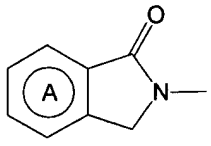
(l)



(n)



(p)



(q)

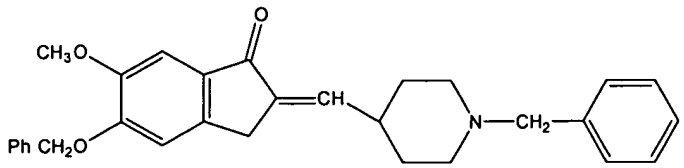
where S is a lower alkyl group with 1 to 6 carbon atoms, a lower alkoxy group with 1 to 6 carbon groups, a halogen atom or a hydroxyl group; t is 0 or an integer from 1 to 4; $(S)_t$ may form a methylenedioxy or ethylenedioxy group between adjacent carbon atoms on the phenyl ring linked; Y in formula (l) is a hydrogen atom or a lower alkyl group with 1 to 6 carbon atoms; V in formula (k) is a hydrogen atom or a lower alkoxy group with 1 to 6 carbon atoms; W^1 and W^2 in formula (n) independently represent, similarly or differently, a hydrogen atom, a lower alkyl group with 1 to 6 carbon atoms, or a lower alkoxy group with 1 to 6 carbon atoms; W^3 in formula (n) is a hydrogen atom or a lower alkyl group with 1 to 6 carbon atoms; phenyl ring A in formulas (a) to (e), (g), (j), (l) and (q) may be substituted with an alkyl group with 1 to 6 carbon atoms or a alkoxy group with 1 to 6 carbon atoms;

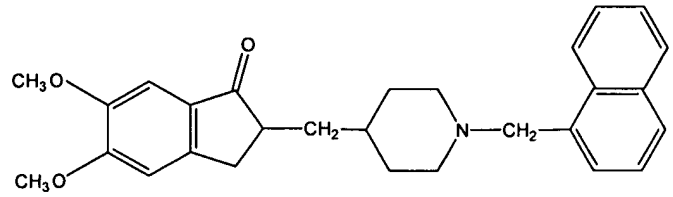
B is a group represented by a formula $-(CHR^2)_n-$ (where n is 0 or an integer from 1 to 10; R^2 is each independently a hydrogen atom or a methyl group), a group represented by a formula $=(CH-CH=CH)_b-$ (where b is an integer from 1 to 3), a group represented by a formula $=CH-(CH_2)_c-$ (where c is 0 or an integer from 1 to 9), or a group represented by a formula $=(CH-CH)_d=$ (where d is 0 or an integer from 1 to 5);

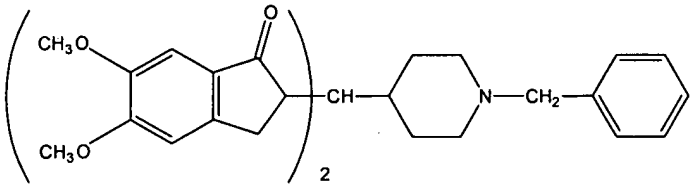
K is a phenylalkyl group that may have, as a substituent, an alkyl group with 1 to 6 carbon atoms which may be halogenated, an alkoxy group with 1 to 6 carbon atoms, a nitro group, a halogen atom, a carboxyl group, a benzyloxy group, an alkoxycarbonyl group with 1 to 6 carbon atoms, an amino group, a monoalkylamino group with 1 to 6 carbon atoms, a dialkylamino group with 1 to 6 carbon atoms, a carbamoyl group, an acylamino group with 1 to 6 carbon atoms, a cyclohexyloxycarbonyl group, an alkylaminocarbonyl group with 1 to 6 carbon atoms, an alkylcarbonyloxy group with 1 to 6 carbon atoms, a hydroxyl group, a formyl group or an alkoxy (with 1 to 6 carbon atoms)-alkyl (with 1 to 6 carbon atoms) group; and

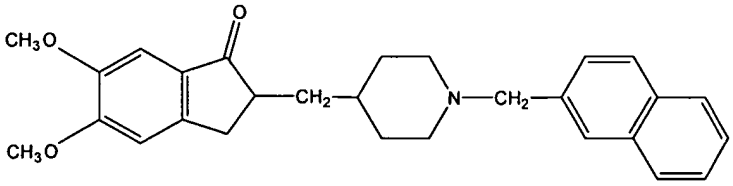
$\overline{\text{- - - -}}$ represents a single bond or a double bond;

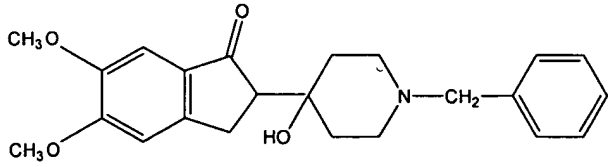
(iii) a cyclic amine derivative selected from the compounds represented by the following formulas or a pharmacologically acceptable salt thereof:

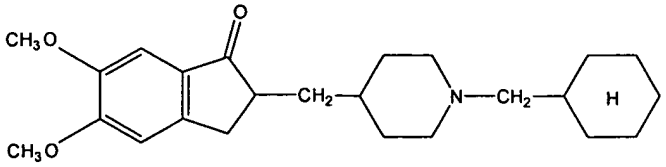


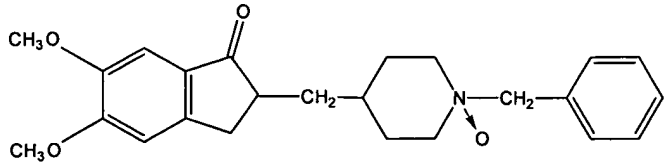




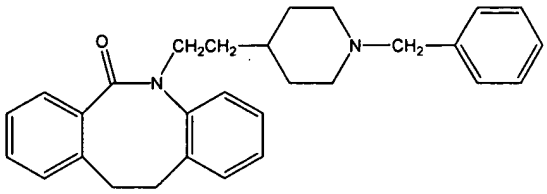


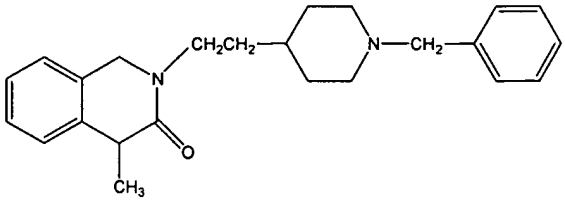


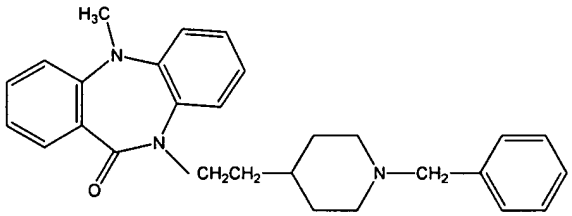


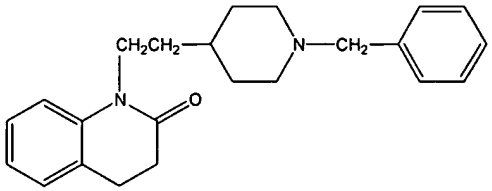


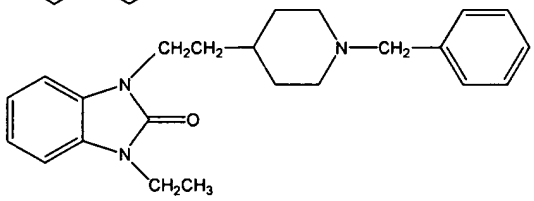
(iv) a cyclic amine derivative selected from the compounds represented by the following formulas or a pharmacologically acceptable salt thereof:

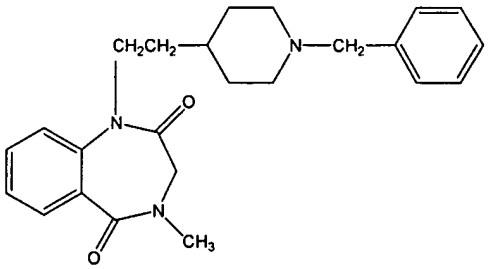


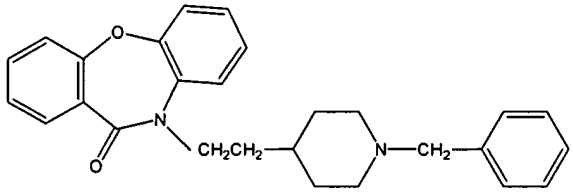




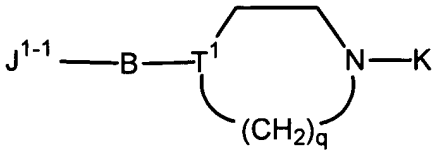






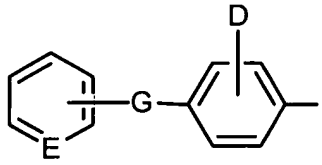


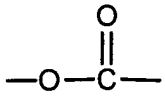
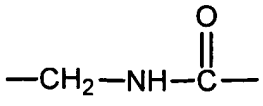
(v) a cyclic amine derivative represented by the following general formula (I-1) or a pharmacologically acceptable salt thereof:

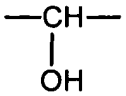
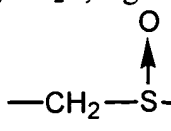


(I-1)

where J^{1-1} is a lower alkyl group with 1 to 6 carbon atoms (hereinafter, just referred to as "lower alkyl group"); a cyclohexyl group; a phenyl, pyridyl or pyrazyl group which may have, as a substituent, a lower alkyl group, a lower alkoxy group with 1 to 6 carbon atoms (hereinafter, just referred to as "lower alkoxy group"), a nitro group, a halogen, a carboxyl group, a lower alkoxycarbonyl group, an amino group, a mono-lower alkylamino group, a di-lower alkylamino group, a carbamoyl group, an acylamino group derived from aliphatic saturated monocarboxylic acid with 1 to 6 carbon atoms, a cyclohexyloxycarbonyl group, a lower alkylaminocarbonyl group, a lower alkylcarbonyloxy group, a halogenated lower alkyl group, a hydroxyl group, a formyl group or a lower-alkoxy-lower-alkyl group; a group represented by a formula



where G is a group represented by a formula  , a group represented by a formula  , a group represented by a formula -O- , a group represented by a formula  , a group represented by a formula $-CH_2-O-$, a group represented by a

formula $-CH_2-SO_2-$, a group represented by a formula  , or a group represented by a formula  ;

E is a carbon atom or a nitrogen atom;

a quinolyl group; a quinoxalyl group; a furyl group or a group represented by a formula R^1-CH=CH- (where R^1 is a hydrogen atom or a lower alkoxycarbonyl group);

B is a group represented by a formula $-(CH_2)_n-$, a group represented by a formula $-NR^2-(CH_2)_n-$ (where R^2 is a hydrogen atom, a lower alkyl group, a phenyl group or a lower alkylsulfonyl group), a group represented by a formula $-CONR^3-(CH_2)_n-$ (where R^3 is a hydrogen atom, a lower alkyl group, a phenyl, benzyl or pyridyl group which may have, as a substituent, a lower alkyl group, a lower alkoxy group, a halogen or a hydroxyl group), a group represented by a formula $-NH-CO-(CH_2)_n-$, a group represented by a formula $-CH_2-CO-NH-(CH_2)_n-$, a group represented by a formula $-CO-CH_2-CH(OH)-CH_2-$, a group represented by a formula $-CO-(CH_2)_n-$, a group represented by a formula $-C(OH)-(CH_2)_n-$ or a group represented by a formula $-CO-CH=CH-CH_2-$; and n in the above formulas is 0 or an integer from 1 to 10;

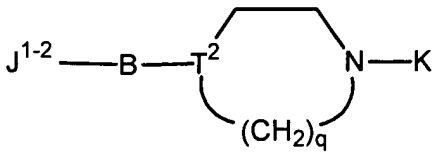
T^1 is a carbon atom;

K is a phenylalkyl group (where the alkyl has 1 to 2 carbon atoms) in which the phenyl may have, as a substituent, a lower alkyl group, a lower alkoxy group, a nitro group, a halogen, a carboxyl group, a lower alkoxycarbonyl group, an amino group, a mono-lower alkylamino group, a di-lower alkylamino group, a carbamoyl group, an acylamino group derived from aliphatic saturated monocarboxylic acid with 1 to 6 carbon atoms, a cyclohexyloxycarbonyl group, a lower alkylaminocarbonyl group, a lower alkylcarbonyloxy group, a halogenated lower alkyl group, a hydroxyl group, a formyl group or a lower-alkoxy-lower-alkyl group; a cinnamyl group; a lower alkyl group; a pyridyl methyl group; a cycloalkyl (with 3 to 6

carbon atoms)-alkyl group; an adamantanemethyl group; a furfuryl group; a cycloalkyl group with 3 to 6 carbon atoms; or an acyl group; and

q is 1 or 2;

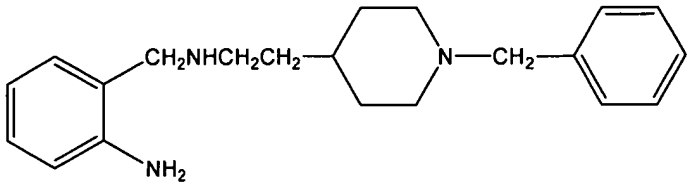
(vi) a cyclic amine derivative represented by the following general formula (I-2) or a pharmacologically acceptable salt thereof:

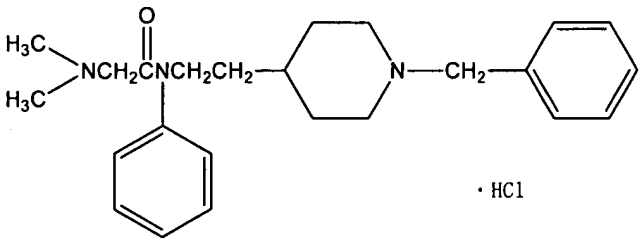


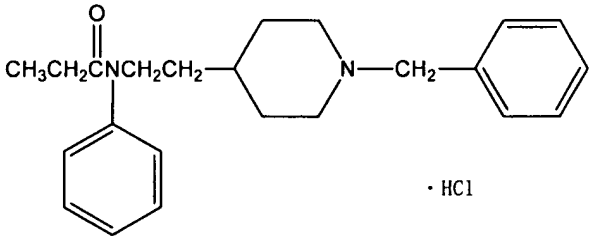
(I-2)

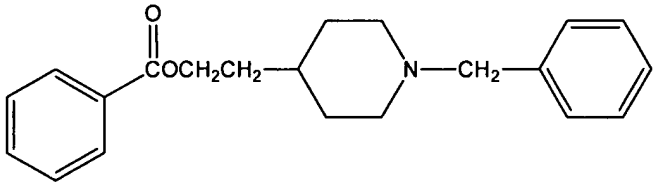
where J^{1-2} is an indanonyl group which may have, as a substituent, a lower alkyl group with 1 to 6 carbon atoms or a lower alkoxy group with 1 to 6 carbon atoms; T^2 is a nitrogen atom; B, K and q are the same as defined above;

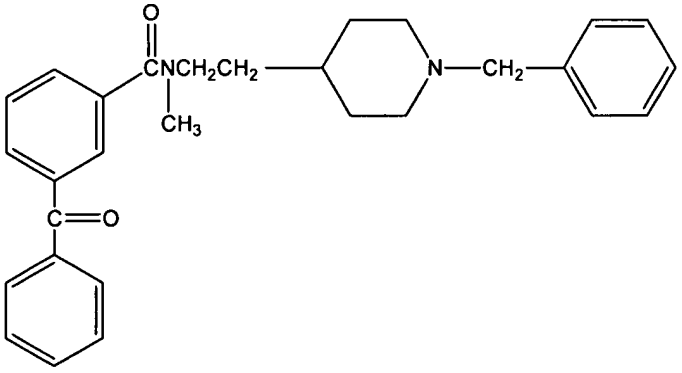
(vii) a cyclic amine derivative selected from the compounds represented by the following formulas or a pharmacologically acceptable salt thereof:

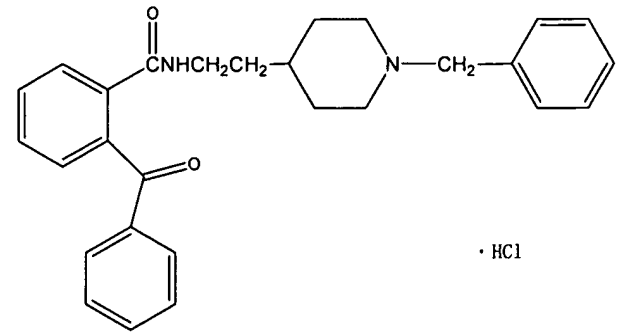




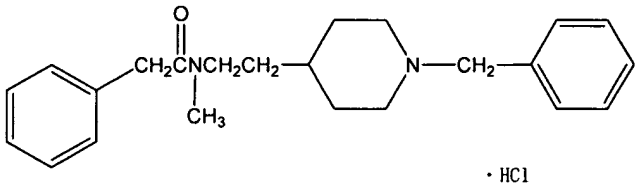




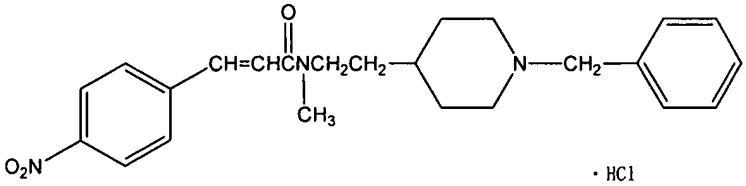




· HCl



· HCl



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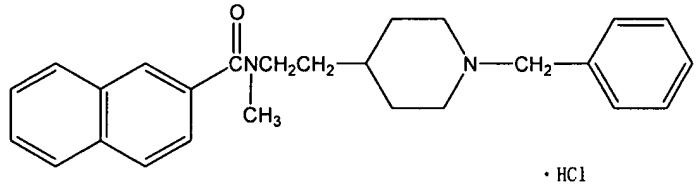

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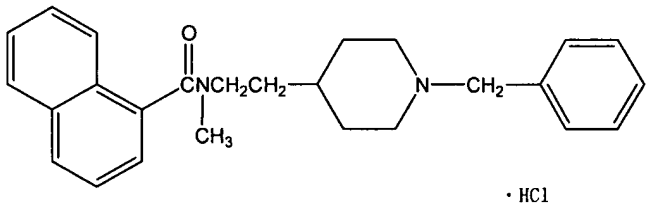

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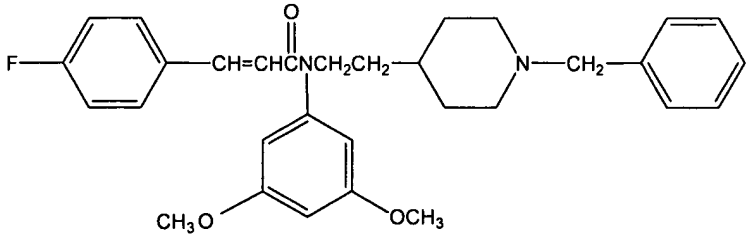

· HCl

Claim 4 (original): The prophylactic and/or therapeutic agent according to claim 3, wherein the salt is a hydrochloride salt.

Claim 5 (currently amended): The prophylactic and/or therapeutic agent according to claim 3~~ or 4~~, wherein the neurocyte disorder is induced by cerebral ischemia, excitotoxicity or Aβ toxicity.

Claim 6 (currently amended): The prophylactic and/or therapeutic agent according to claim 3~~ or 4~~, wherein the neurocyte disorder is induced by cerebral ischemia or excitotoxicity associated with any one of cerebral apoplexy, cerebral infarction or cerebral embolism.

Claim 7 (original): The prophylactic and/or therapeutic agent according to claim 6, wherein the excitotoxicity is by NMDA or kainic acid.

Claim 8 (currently amended): The prophylactic and/or therapeutic agent according to claim 3~~ or 4~~, wherein the neurocyte disorder is induced by Aβ toxicity associated with Alzheimer's disease or Down's syndrome.

Claim 9 (currently amended): The agent according to ~~any one of claims 1 to 8~~claim 1, wherein the neurons are brain-derived, mature neurons.

Claim 10 (original): The agent according to claim 9, wherein the neurons are derived from any one of cerebral cortex, septal area or hippocampus.

Claim 11 (currently amended):): The agent according to claim 9~~ or 10~~, wherein the neurons are primary culture cells.

Claim 12 (original): A prognosis improving agent for any disease selected from cerebral apoplexy, cerebral infarction or cerebral embolism, comprising the protective agent according to claim 1 or 2 or the prophylactic and/or therapeutic agent according to claim 3 or 4.

Claim 13 (currently amended): A method of protecting neurons of the central nervous system, comprising administering to a patient an effective amount of the protective agent according to claim 1 ~~or 2~~.

Claim 14 (currently amended): A method of preventing and/or treating disorders in neurons of the central nervous system, comprising administering to a patient an effective amount of the prophylactic and/or therapeutic agent according to claim 3 ~~or 4~~.

Claim 15 (original): The method according to claim 14, wherein the disorder in neurons of the central nervous system is induced by cerebral ischemia, excitotoxicity or Aβ toxicity.

Claim 16 (original): The method according to claim 15, wherein the excitotoxicity is induced by NMDA or kainic acid.

Claim 17 (original): The method according to claim 14, wherein the disorder in neurons of the central nervous system is induced by cerebral ischemia or excitotoxicity associated with any one of cerebral apoplexy, cerebral infarction or cerebral embolism.

Claim 18 (original): The method according to claim 14, wherein the disorder in neurons of the central nervous system is induced by Aβ toxicity associated with Alzheimer's disease or Down's syndrome.

Claim 19 (original): A method of improving the prognosis of any one of cerebral apoplexy, cerebral infarction or cerebral embolism, comprising administering to a patient an effective amount of the prognosis improving agent according to claim 12.

Claim 20 (canceled)

Claim 21 (original): A method of screening for a compound with Aβ aggregation inhibitory effect or a pharmacologically acceptable salt thereof, comprising contacting cholinergic neurons of the central nervous system with a candidate compound in the presence of Aβ and detecting or measuring the amount of Aβ aggregation.

Claim 22 (original): The method according to claim 21, wherein the results of detection or measurement of the amount of Aβ aggregation are compared with the amount of Aβ aggregation in the absence of the candidate compound to thereby judge whether or not the candidate compound has Aβ aggregation inhibitory effect.

Claim 23 (currently amended): A screening kit for a compound with Aβ aggregation inhibitory effect or a pharmacologically acceptable salt thereof, which is for use in the method according to claim 21 ~~or 22~~.

Claim 24 (original): A method for screening for a compound, or a pharmacologically acceptable salt thereof, effective for preventing and/or treating disorders in neurons of the central nervous system induced by Aβ toxicity, comprising contacting cholinergic neurons of the central nervous system with a candidate compound in the presence of Aβ and detecting cytotoxicity or cell death.

Claim 25 (original): The method according to claim 24, wherein the results of detection of cytotoxicity or cell death are compared with the extent of cytotoxicity or cell death in the absence of the candidate compound to thereby judge whether or not the candidate compound has cell protective effect against Aβ toxicity.

Claim 26 (currently amended): The method according to claim 24 ~~or 25~~, wherein the detection of cytotoxicity or cell death is performed by measuring the concentration of lactate dehydrogenase or by MTT assay.

Claim 27 (currently amended): A screening kit for a compound, or a pharmacologically acceptable salt thereof, effective for preventing and/or treating disorders in neurons of the central nervous system induced by Aβ toxicity, which is for use in the method according to claim 24 ~~or 25.~~